Lab 4 - Timer Interrupt Software

Friday, March 27, 2020 2:55 PM

To use Interrupts, we need three things:

1. An interrupt source
2. We must Enable the specific Interrupt
3. We need an Interrupt Service Routine (ISR)

---------- Now Start Configuring the device which will generate the interrupt -- Timer 1 -------

We will be using SYSCLK = 80MHz
PBCLK = 10MHz

---------- Define constants for configuring the timer ----------

```
#define SYS_FREQ (80000000L)
#define PB_DIV 8

#define PRESCALE        256                                     // 39,062 Hz clock to timer
#define TOGGLES_PER_SEC     2                                   // highest blink frequency
#define T1_TICK             (SYS_FREQ/PB_DIV/PRESCALE/TOGGLES_PER_SEC)
```

---------- configuring the timer ----------

```
unsigned int tcfg;

/* Config Timer 2. This sets it to count 39,062 Hz with a period of T2_TICK          */

tcfg = T1_ON|T1_SOURCE_INT|T1_PS_1_256;
OpenTimer1(tcfg, T1_TICK);
```

---------- configuring the interrupt controller and timer interrupt ----------

```
/* Now enable system-wide multi-vector interrrupt handling      */
INTEnableSystemMultiVectoredInt();

/* configure timer 2 interrupt with priority of 2  */
ConfigIntTimer1(T1_INT_ON | T1_INT_PRIOR_2);

/* Clear interrupt flag    */
mT1ClearIntFlag();
```